

LIST OF PENDING CLAIMS:

Please amend claims 1,7-8, 13, 15-16, 19, 30 and 31 as follows.

1. (Currently amended) A method for production of a derivatized resin represented by ~~the~~ formula (I):


(I) $R_4-NH-(C=X)-Y-Z-SS$ wherein:

R_4 is $-NH-R_3$, $-NH_2$, $-OH$, or $-O-R_3$, wherein R_3 is a protecting group, provided that when R_4 is $-NH-R_3$ or $-O-R_3$, then the protecting group is removed and replaced by $-H$ in the final product (I);

X is O , S , or NR_7 ;

R_7 is H , alkyl, alkenyl, aryl, aralkyl, cycloalkyl, or heterocycle;

Y is absent, $-NH-$, or $-CH_2$;

 Z is absent or is a substituent selected from the group consisting of $-NH-$, $-O-$, $-(C=O)-$, $-S-$, SO_2- , alkyl, alkenyl, aryl, aralkyl, cycloalkyl, heterocycle, ~~and combinations thereof~~, provided that when Y is absent and X is O or S , Z does not comprise $-(C=O)-$ immediately adjacent to $-(C=X)-$, and when Y is $-NH-$ and Z comprises an $-NH-$ or an $-S-$, at least one carbon atom separates Y and the $-NH-$ or $-S-$ of Z , wherein, ~~under conditions for peptide synthesis~~, functional groups of Z are protected;

SS is a solid support;

wherein said derivatized resin represented by formula (I) is prepared by a process comprising the steps of:

(i) reacting a starting material represented by formula (C)

(C) $R_1-(C=X)-Y-Z-SS$, wherein R_1 is a leaving group;

with a reactant of formula (D)

(D) R_4-NH_2

to form derivatized resin ~~the product~~ (I) of formula $R_4-NH-(C=X)-Y-Z$
SS; and

(ii) recovering the derivatized resin (I);

wherein said material represented by formula (C) is prepared by a process comprising the step of:

(iv) reacting a starting material of formula (A)

(A) $R-Y-Z-SS$, wherein R is a leaving group,

with a reactant of formula (B)

(B) $R_1-(C=X)-R_2$, wherein R_2 is a leaving group, same or different than R_1 ,

to form said starting material (C) represented by formula

(C) $R_1-(C=X)-Y-Z-SS$.

2-5. (Withdrawn)

6. (Cancelled)

7. (Currently amended) The method according to claim ~~6~~ 1 wherein R-Y of reactant (A) in step (iv) is NH_2 , such that said method produces a derivatized resin represented by formula (IA):

(IA) $R_4-NH-(C=X)-NH-Z-SS$.

8. (Currently amended) The method according to claim ~~6~~ 1 wherein Y of reactant (B) in step (iv) is absent or is $-CH_2-$, X is oxygen, and R_1 is hydroxyl, such that said method produces a derivatized resin represented by formula (IB):

(IB) $R_4-NH-(C=O)-Y-Z-SS$.

9. (Unchanged) The method according to claim 8 which further comprises thionating the derivatized resin (TB) to produce a product represented by formula (IC);

(IC) $R_4-NH-(C=S)-Y-Z-SS$.

10. (Unchanged) The method according to claim 9 wherein said thionating comprises contacting the product (IB) with Lawesson's reagent or P2S5 in mild base.

11. (Unchanged) The method according to claim 9 further comprising alkylating the derivatized resin (IC) with an alkylating agent capable of contributing an alkyl group R11 to form an intermediate represented by the formula (H):

(H) $R_4-N=(C-S-R_{11})-Y-Z-SS$, and reacting the intermediate (H) with NH_2-R_7 to form a product represented by the formula (ID):

(ID) $R_4-NH-(C=NR_7)-Y-Z-SS$; and recovering the product (ID).

12. (Unchanged) The method according to claim 11 wherein said alkylating agent is selected from the group consisting of iodomethane, iodoethane, methylbromide, ethylbromide, allylbromide, allylchloride, dimethylsulfate, and $CH_3OSO_3CF_3$.

13. (Currently amended) The method according to claim 1 to produce a product represented by the formula (ID), wherein reactant (C) of step (i), when Y is not absent and R1 is -OH, is prepared by a process comprising:

reacting a starting material represented by formula (B):

(B) $R1-(C=X)-R2$, wherein R1 is -OH and R2 is an independently selected leaving group, same or different than R1, and X is NR7, with a reactant represented by formula (G):

(G) T-Z-SS; wherein T is -CH₂Cl, -NH₂, or COOH, under conditions permitting reaction of (B) with (C), such that T is transformed into moiety Y, and recovering the material (C) wherein X is NR7.

14. (Unchanged) The method according to claim 13 wherein the reactant (B) is selected from the group consisting of diimidazole imine and phosgeneimine diimidazole.

15. (Currently amended) The method according to claim 1 wherein, when R4 of the derivatized resin represented by formula (I) is R3-NH, R4 is converted to a ~~reactive~~ derivatized resin bearing a free amine by removal of R3.

16. (Currently amended) The method according to claim 15 wherein said ~~reactive~~ derivatized resin is contacted with an ~~appropriately~~ protected aldehyde or ketoamide to form a semicarbazone derivatized resin.

17. (Unchanged) The method according to claim 16 wherein said aldehyde is an argininal having a guanidino side chain and an amino terminal nitrogen.

18. (Unchanged) The method according to claim 17 wherein said aldehyde is orthogonally protected.

19. (Currently amended) The method according to claim 18 wherein the argininal guanidino side chain of said aldehyde is di-Boc or di-Alloc protected and said amino terminal nitrogen is Fmoc protected.

20-29. (Withdrawn)

30. (Currently amended) The method according to claim ~~6~~ 1 wherein R1 of reagent (B) in step (iv) is selected from the group consisting of imidazole, p-

nitrophenoxy, C1, succinimidyl, and Me-imidazolium; R2 of reagent (B) of step (iv) is selected from the group consisting of imidazole, C1, succinimidyl, and Me-imidazolium.

31. (Currently amended) The method according to claim 1 ~~30~~ wherein reactant (A) in step (iv) is selected from the group consisting of aminomethylated polystyrene resin and 4-methyl benzhydrylamine resin.

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amended